Onslow County Schools' High School Mobile Learning Initiative

Improves Math Outcomes by Transforming Teaching and Learning

A collaboration between Qualcomm® Wireless Reach™ and Onslow County Schools created an opportunity to implement a landmark mobile learning program within high school math classrooms to improve math proficiency and college/career readiness. The seven year program (2007-2014), began with smartphones in the hands of approximately 80 underperforming Algebra students and ultimately grew to serve more than 1,000 high school students at seven district high schools, supporting math instruction from Algebra through AP Calculus with smartphones and then tablets. In addition to Internet access at school, students were provided with 24/7 Internet connectivity through 3G or 4G transmission, closing a portion of the digital divide that existed within Onslow County, similar to other rural districts. At the heart of the impact is a change in teacher practice and the transformation of the math classroom. This program is a valuable exemplar for other districts interested in leveraging new mobile devices and resources to improve student outcomes and enhance teacher effectiveness.

UNITED STATES

2014 Statistics*

Population (est.)	318.9 million
Life Expectancy	79.6 years
GDP Per Capita	US$52,800
Mobile Penetration	104.8%

Challenge

- Onslow County Schools was seeking ways to improve the college and career readiness of their underperforming students, specifically in their math proficiency.
- The school district leadership was interested in transforming teaching and learning by leveraging emerging technologies.
- As the school district serves many military families stationed at Marine Corps Base Camp Lejeune, the reality was that the military dependent children were often off track with course completions due to frequent relocations, sometimes resulting in lower performance.
- Inequity in student home Internet access exists within the school district.

Solution

- Every student at seven district high schools were provided with HTC smartphones and tablets to use in and outside of school.
- Devices included 24/7 3G or 4G internet access that allowed students to do homework or collaborate on projects with peers outside of the classroom, from the local coffee shop, the school bus or home.
- Teachers used a variety of mobile-enabled content to support math instruction in the classroom including polling apps, interactive videos, games and social media tools.
- Students used their mobile device to video record each other solving various math problems. The student-created videos became part of an online class library and were used for student self-remediation as needed.
- Students blogged about math outside of school using a secure environment available only to classmates.
- Inclusion of the devices and mobile-enabled content provided an opportunity for the teachers to transform their teaching practice and built up their capacity for adopting other emerging technologies in the future.
- The transformation of the math learning experience resulted in higher student engagement in learning math, increased scores in math standardized tests, and the development of critical thinking skills essential for workplace preparation.

*Sources: CIA World Factbook (https://www.cia.gov/library/publications/the-world-factbook); Mobile penetration data provided by Ovum World Cellular Information Service and based on market intelligence.

Impact

Project Tomorrow®, a national education nonprofit, conducted the external evaluation of the project for all years. Key findings from the evaluation include:

3G or 4G access to 1,000+ students

From 2007 to 2014, more than 1,000 high school students used a wireless connected smartphone, tablet or netbook to support their math instruction in Algebra, Algebra II, Geometry, Calculus and Statistics.

Improved math competencies

Students gained increased confidence in their abilities with math: more comfortable learning math (94 percent), talking about math (82 percent) and explaining their math problem solutions (85 percent).

Increased interest in a STEM career field

Almost two-thirds of the students took additional math courses as a byproduct of their experience with mobile-enabled math instruction, with over 50 percent considering a career in the math field.

Development of workplace skills

95 percent of students said mobile learning helped them develop the skills they need for future success. 82 percent considered themselves a good problem solver after this class experience.

Teacher capacity building

Teachers developed a new appreciation for the mobile devices as multi-functional tools that resulted in a re-engineering of math instruction to include more project based learning and student led explorations.

Program Stakeholders

PUBLIC SCHOOLS OF NORTH CAROLINA
State Board of Education
Department of Public Instruction

ONSLOW COUNTY SCHOOLS
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